

CLAIMS

1. A double stranded RNA composed of a sense strand comprising the nucleotide sequence of SEQ ID NO: 1 and a complementary strand thereof, wherein said sense strand is 100 nucleotides or less in length.
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2. A vector expressing a double stranded RNA composed of a sense strand comprising the nucleotide sequence of SEQ ID NO: 1 and a complementary strand thereof, wherein said sense strand is 100 nucleotides or less in length.
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3. An inhibitor of the expression of the Rad51 gene comprising the double stranded RNA of claim 1 or the vector of claim 2 as an active ingredient.
4. The inhibitor of claim 3, wherein said Rad51 gene is a human Rad51 gene.
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5. A pharmaceutical composition comprising a double stranded RNA composed of a sense strand comprising the nucleotide sequence of SEQ ID NO: 1 and a complementary strand thereof, or a vector capable of expressing the RNA, as an active ingredient.
- 20 6. A pharmaceutical composition comprising a double stranded RNA composed of a sense strand comprising the nucleotide sequence of SEQ ID NO: 1 and a complementary strand thereof, or a vector capable of expressing the RNA, and a chemotherapeutic agent as active ingredients.
7. The pharmaceutical composition of claim 6, wherein said pharmaceutical composition is used to treat a cancer or malignant tumor.
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8. The pharmaceutical composition of claim 6, wherein said chemotherapeutic agent is selected from the group consisting of carcinostatic agents, anticancer agents, antitumor agents, and antineoplastic agents.
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9. The pharmaceutical composition of claim 6, wherein said chemotherapeutic agent has either a nucleic acid synthesis inhibitory activity or a nucleic acid impairing activity, or both.
- 35 10. The pharmaceutical composition of claim 6, wherein said chemotherapeutic agent is at least one compound selected from the group consisting of bleomycins, anthraquinone series carcinostatic agents, mitomycins, actinomycins, camptothecins, cisplatins, streptozotocin,

5-fluorouracil (5-FU) and derivatives thereof, pirarubicin, and pharmaceutically acceptable salts thereof.

11. The pharmaceutical composition of claim 10, wherein said bleomycins comprise a
5 compound selected from the group consisting of bleomycin and peplomycin.

12. The pharmaceutical composition of claim 10, wherein said pharmaceutically acceptable
salts of bleomycins comprise a compound selected from the group consisting of bleomycin
hydrochloride, bleomycin sulfate, and peplomycin sulfate.

10 13. The pharmaceutical composition of claim 10, wherein said cisplatins comprise a compound
selected from the group consisting of cisplatin, paraplalin, and briplatin.

14. The pharmaceutical composition of claim 6, wherein said chemotherapeutic agent is
15 encapsulated in a viral envelope vector together with the double stranded RNA.

15. The pharmaceutical composition of claim 14, wherein said viral envelope vector is
composed of an envelope derived from a virus belong to a family selected from the group
consisting of Retroviridae, Togaviridae, Coronaviridae, Flaviviridae, Paramyxoviridae,
20 Orthomyxoviridae, Bunyaviridae, Rhabdoviridae, Poxviridae, Herpesviridae, Baculoviridae, and
Hepadnaviridae.

16. The pharmaceutical composition of claim 14, wherein said viral envelope vector is
composed of an envelope derived from a virus selected from the group consisting of Sendai virus,
25 retrovirus, adenovirus, adeno-associated virus, Herpes virus, vaccinia virus, poxvirus, and
influenza virus.

17. A combined composition comprising (a) a pharmaceutical composition comprising a
double stranded RNA composed of a sense strand comprising the nucleotide sequence of SEQ ID
30 NO: 1 and a complementary strand thereof as an active ingredient, and (b) a pharmaceutical
composition comprising a chemotherapeutic agent as an active ingredient.

18. A combined composition comprising (a) a pharmaceutical composition comprising a vector
capable of expressing a double stranded RNA composed of a sense strand comprising the
35 nucleotide sequence of SEQ ID NO: 1 and a complementary strand thereof as an active
ingredient, and (b) a pharmaceutical composition comprising a chemotherapeutic agent as an

active ingredient.

19. The combined composition of claim 17 or 18, wherein said combined composition is used to treat a cancer or malignant tumor.

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20. The combined composition of any one of claims 17 to 19, wherein said chemotherapeutic agent is selected from the group consisting of carcinostatic agents, anticancer agents, antitumor agents, and antineoplastic agents.

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21. The combined composition of any one of claims 17 to 19, wherein said chemotherapeutic agent has either a nucleic acid synthesis inhibitory activity or a nucleic acid impairing activity, or both.

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22. The combined composition of any one of claims 17 to 19, wherein said chemotherapeutic agent is at least one compound selected from the group consisting of bleomycins, anthraquinone series carcinostatic agents, mitomycins, actinomycins, camptothecins, cisplatins, streptozotocin, 5-fluorouracil (5-FU) and derivatives thereof, pirarubicin, and pharmaceutically acceptable salts thereof.

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23. The combined composition of claim 22, wherein said bleomycins comprise a compound selected from the group consisting of bleomycin and peplomycin.

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24. The combined composition of claim 22, wherein said pharmaceutically acceptable salts of bleomycins comprise a compound selected from the group consisting of bleomycin hydrochloride, bleomycin sulfate, and peplomycin sulfate.

25. The combined composition of claim 22, wherein said cisplatins comprise a compound selected from the group consisting of cisplatin, paraplalin, and briplatin.

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26. The combined composition of claim 17 or 18, wherein said double stranded RNA is encapsulated in a viral envelope vector.

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27. The combined composition of claim 26, wherein said viral envelope vector is composed of an envelope derived from a virus belong to a family selected from the group consisting of Retroviridae, Togaviridae, Coronaviridae, Flaviviridae, Paramyxoviridae, Orthomyxoviridae, Bunyaviridae, Rhabdoviridae, Poxviridae, Herpesviridae, Baculoviridae, and Hepadnaviridae.

28. The combined composition of claim 26, wherein said viral envelope vector is composed of an envelope derived from a virus selected from the group consisting of Sendai virus, retrovirus, adenovirus, adeno-associated virus, Herpes virus, vaccinia virus, poxvirus, and influenza virus.

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29. A method for inhibiting Rad51 expression, comprising the step of administering into cells the double stranded RNA of claim 1 or the vector of claim 2.

10 30. A method for treating a cancer or malignant tumor, comprising the step of administering a double stranded RNA composed of a sense strand comprising the nucleotide sequence of SEQ ID NO: 1 and a complementary strand thereof, or a vector capable of expressing the RNA, and a chemotherapeutic agent.

15 31. The method of claim 30, wherein said step of administering the double stranded RNA or the vector capable of expressing the RNA and the chemotherapeutic agent comprises administering a viral envelope vector in which the double stranded RNA and the chemotherapeutic agent have been encapsulated.

20 32. The method of claim 30, wherein said step of administering the double stranded RNA or the vector capable of expressing the RNA and the chemotherapeutic agent comprises separately administering a pharmaceutical composition comprising the double stranded RNA or the vector capable of expressing the RNA as an active ingredient, and a pharmaceutical composition comprising the chemotherapeutic agent as an active ingredient.

25 33. Use of the double stranded RNA of claim 1 or the vector of claim 2 for preparing a pharmaceutical composition for treating a cancer or malignant tumor.

30 34. Use of the double stranded RNA of claim 1 or the vector of claim 2, wherein said pharmaceutical composition comprises a chemotherapeutic agent.

35 35. A pharmaceutical composition comprising bleomycin or a pharmaceutically acceptable salt thereof and a Rad51 inhibitor.

36. A pharmaceutical composition comprising cisplatin or a pharmaceutically acceptable salt thereof and a Rad51 inhibitor.

37. A combined composition comprising (a) a pharmaceutical composition comprising bleomycin or a pharmaceutically acceptable salt thereof as an active ingredient, and (b) a pharmaceutical composition comprising a Rad51 inhibitor as an active ingredient.

5 38. A combined composition comprising (a) a pharmaceutical composition comprising cisplatin or a pharmaceutically acceptable salt thereof as an active ingredient, and (b) a pharmaceutical composition comprising a Rad51 inhibitor as an active ingredient.

10 39. The combined composition of claim 37 or 38, wherein said combined composition is intended to treat a cancer or malignant tumor.